

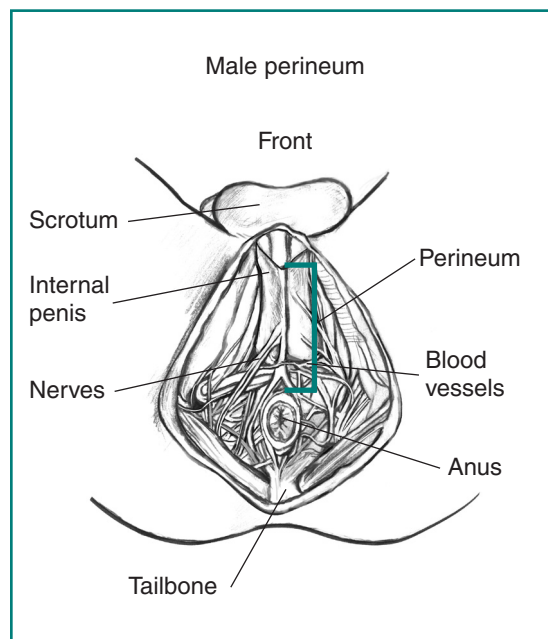
# Perineal Injury in Males

*National Kidney and Urologic Diseases Information Clearinghouse*



## What is perineal injury in males?

Perineal injury is an injury to the perineum, the part of the body between the anus and the genitals, or sex organs. In males, the perineum is the area between the anus and the scrotum, the external pouch of skin that holds the testicles. Injuries to the perineum can happen suddenly, as in an accident, or gradually, as the result of an activity that persistently puts pressure on the perineum. Sudden damage to the perineum is called an acute injury, while gradual damage is called a chronic injury.



In males, the perineum is the area between the anus and the scrotum.

## Why is the perineum important?

The perineum is important because it contains blood vessels and nerves that supply the urinary tract and genitals with blood and nerve signals. The perineum lies just below a sheet of muscles called the pelvic floor muscles. Pelvic floor muscles support the bladder and bowel.

## What are the complications of perineal injury?

Injury to the blood vessels, nerves, and muscles in the perineum can lead to complications such as

- bladder control problems
- sexual problems

**Bladder control problems.** The nerves in the perineum carry signals from the bladder to the spinal cord and brain, telling the brain when the bladder is full. Those same nerves carry signals from the brain to the bladder and pelvic floor muscles, directing those muscles to hold or release urine. Injury to those nerves can block or interfere with the signals, causing the bladder to squeeze at the wrong time or not to squeeze at all. Damage to the pelvic floor muscles can cause bladder and bowel control problems.

**Sexual problems.** The perineal nerves also carry signals between the genitals and the brain. Injury to those nerves can interfere with the sensations of sexual contact.

Signals from the brain direct the smooth muscles in the genitals to relax, causing greater blood flow into the penis. In men, damaged blood vessels can cause erectile dysfunction (ED), the inability to achieve or maintain an erection firm enough for sexual intercourse. An internal portion of the penis runs through the perineum and contains a section of the urethra. As a result, damage to the perineum may also injure the penis and urethra.

## What are the most common causes of acute perineal injury?

Common causes of acute perineal injury in males include

- perineal surgery
- straddle injuries
- sexual abuse
- impalement

### Perineal Surgery

Acute perineal injury may result from surgical procedures that require an incision in the perineum:

- A prostatectomy is the surgical removal of the prostate to treat prostate cancer. The prostate, a walnut-shaped gland in men, surrounds the urethra at the neck of the bladder and supplies fluid that goes into semen. The surgeon chooses the location for the incision based on the patient's physical characteristics, such as size and weight, and the surgeon's experience and preferences. In one approach, called the radical perineal prostatectomy, the surgeon makes an incision between the scrotum and the

anus. In a retropubic prostatectomy, the surgeon makes the incision in the lower abdomen, just above the penis. Both approaches can damage blood vessels and nerves affecting sexual function and bladder control.

- Perineal urethroplasty is surgery to repair stricture, or narrowing, of the portion of the urethra that runs through the perineum. Without this procedure, some men would not be able to pass urine. However, the procedure does require an incision in the perineum, which can damage blood vessels or nerves.
- Colorectal or anal cancer surgery can injure the perineum by cutting through some of the muscle around the anus to remove a tumor. One approach to anal cancer surgery involves making incisions in the abdomen and the perineum.

Surgeons try to avoid procedures that damage a person's blood vessels, perineal nerves, and muscles. However, sometimes a perineal incision may achieve the best angle to remove a life-threatening cancer.

People should discuss the risks of any planned surgery with their health care provider so they can make an informed decision and understand what to expect after the operation.

### Straddle Injuries

Straddle injuries result from falls onto objects such as metal bars, pipes, or wooden rails, where the person's legs are on either side of the object and the perineum strikes the object forcefully. These injuries include motorcycle and bike riding accidents, saddle horn injuries during horseback

riding, falls on playground equipment such as monkey bars, and gymnastic accidents on an apparatus such as the parallel bars or pommel horse.

In rare situations, a blunt injury to the perineum may burst a blood vessel inside the erectile tissue of the penis, causing a persistent partial erection that can last for days to years. This condition is called high-flow priapism. If not treated, ED may result.

### **Sexual Abuse**

Forceful and inappropriate sexual contact can result in perineal injury. When health care providers evaluate injuries in the genital area, they should consider the possibility of sexual abuse, even if the person or family members say the injury is the result of an accident such as a straddle injury. The law requires that health care providers report cases of sexual abuse that come to their attention. The person and family members should understand the health care provider may ask some uncomfortable questions about the circumstances of the injury.

### **Impalement**

Impalement injuries may involve metal fence posts, rods, or weapons that pierce the perineum. Impalement is rare, although it may occur where moving equipment and pointed tools are in use, such as on farms or construction sites. Impalement can also occur as the result of a fall, such as from a tree or playground equipment, onto something sharp. Impalement injuries are most common in combat situations. If an impalement injury pierces the skin and muscles, the injured person needs immediate medical attention to minimize blood loss and repair the injury.

## **What are the most common causes of chronic perineal injury?**

Chronic perineal injury most often results from a job- or sport-related practice—such as bike, motorcycle, or horseback riding—or a long-term condition such as chronic constipation.

### **Bike Riding**

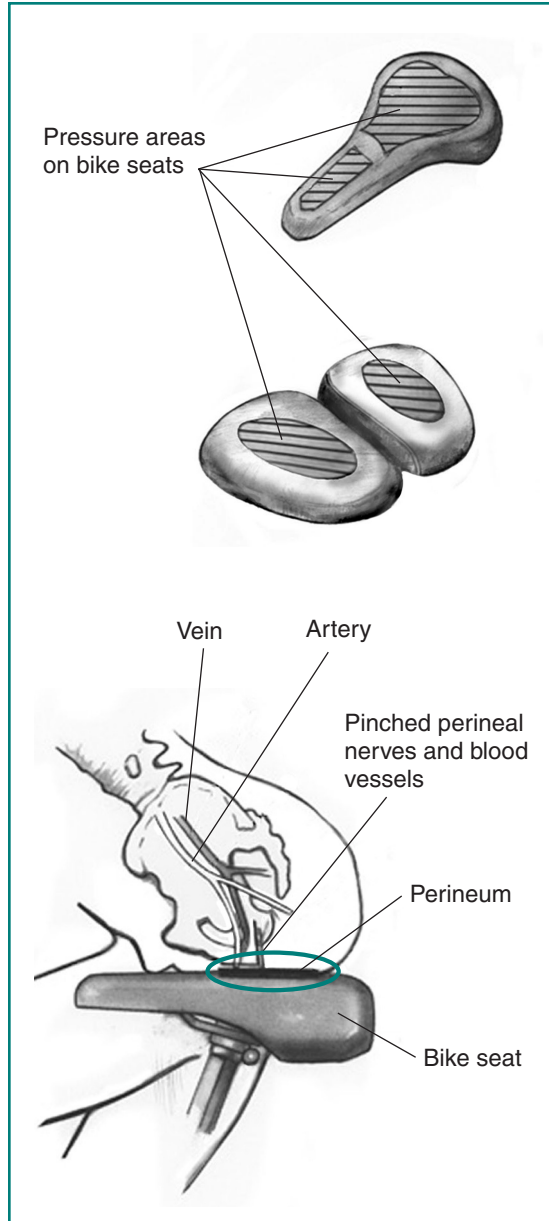
Sitting on a narrow, saddle-style bike seat—which has a protruding “nose” in the front—places far more pressure on the perineum than sitting in a regular chair. In a regular chair, the flesh and bone of the buttocks partially absorb the pressure of sitting, and the pressure occurs farther toward the back than on a bike seat. The straddling position on a narrow seat pinches the perineal blood vessels and nerves, possibly causing blood vessel and nerve damage over time. Research shows wider, noseless seats reduce perineal pressure.<sup>1</sup>

Occasional bike riding for short periods of time may pose no risk. However, men who ride bikes several hours a week—such as competitive bicyclists, bicycle couriers, and bicycle patrol officers—have a significantly higher risk of developing mild to severe ED.<sup>2</sup> The ED may be caused by repetitive pressure on blood vessels, which constricts them and results in plaque buildup in the vessels.

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<sup>1</sup>National Institute for Occupational Safety and Health. No-nose saddles for preventing genital numbness and sexual dysfunction from occupational bicycling. *Workplace Solutions*. April 2009. DHHS publication 2009–131.

<sup>2</sup>Sommer F, Goldstein I, Korda JB. Bicycle riding and erectile dysfunction: a review. *Journal of Sexual Medicine*. 2010;7(7):2346–2358.



The straddling position on a narrow seat pinches the perineal blood vessels and nerves.

Other activities that involve riding saddle-style include motorcycle and horseback riding. Researchers have studied bike riding more extensively than these other activities; however, the few studies published regarding motorcycle and horseback riding suggest motorcycle riding increases the risk of ED and urinary symptoms.<sup>3</sup> Horseback riding appears relatively safe in terms of chronic injury,<sup>4</sup> although the action of bouncing up and down, repeatedly striking the perineum, has the potential for causing damage.

## Constipation

Constipation is defined as having a bowel movement fewer than three times per week. People with constipation usually have hard, dry stools that are small in size and difficult to pass. Some people with constipation need to strain to pass stools. This straining creates internal pressure that squeezes the perineum and can damage the perineal blood vessels and nerves. Read more in *Constipation* at [www.digestive.niddk.nih.gov](http://www.digestive.niddk.nih.gov).

## Who is most at risk for perineal injury?

Men who have perineal surgery are most likely to have an acute perineal injury. Straddle injuries are most common among people who ride motorcycles, bikes, or horses and children who use playground equipment. Impalement injuries are most

<sup>3</sup>Naya Y, Ochiai A, Soh J, Kawauchi A, Miki T. Association between ED and LUTS in Japanese motorcyclists. *International Journal of Impotence Research*. 2008;20(6):574–577.

<sup>4</sup>Alanee S, Heiner J, Liu N, Monga M. Horseback riding: impact on sexual function and lower urinary tract symptoms in men and women. *Urology*. 2009;73(1):109–114.

common in military personnel engaged in combat. Impalement injuries can also occur in construction or farm workers.

Chronic perineal injuries are most common in people who ride bikes as part of a job or sport, or in people with constipation.

## How is perineal injury evaluated?

Health care providers evaluate perineal injury based on the circumstances and severity of the injury. In general, the evaluation process includes a physical examination and one or more imaging tests.

During a physical examination, the patient lies face up with legs spread and feet in stirrups. The health care provider looks for cuts, bruises, or bleeding from the anus. The health care provider may insert a gloved, lubricated finger into the rectum to feel for internal injuries.

To look for internal injuries, the health care provider may order one or more imaging tests. Imaging is the general term for any technique used to provide pictures of bones and organs inside the body. An x-ray technician performs these procedures in an outpatient center or a hospital, and a radiologist—a doctor who specializes in medical imaging—interprets the images. The person does not need anesthesia. However, people with a fear of confined spaces may receive light sedation before a magnetic resonance imaging (MRI) test.

- **Computerized tomography (CT) scans** use a combination of x rays and computer technology to create images. For a CT scan, a health care provider

may give the patient a solution to drink and an injection of a special dye, called contrast medium. CT scans require the patient to lie on a table that slides into a tunnel-shaped device where an x-ray technician takes the x rays. CT scans can show traumatic injury to the perineum.

- **MRI** is a test that takes pictures of the body's internal organs and soft tissues without using x rays. An MRI may include the injection of contrast medium. With most MRI machines, the patient will lie on a table that slides into a tunnel-shaped device that may be open ended or closed at one end. During an MRI, the patient, although usually awake, remains perfectly still while the technician takes the images, which usually only takes a few minutes. The technician will take a sequence of images from different angles to create a detailed picture of the perineum. The patient will hear loud mechanical knocking and humming noises. MRI results can show damage to blood vessels and muscles.
- **Ultrasound** uses a device, called a transducer, that bounces safe, painless sound waves off organs to create an image of their structure. Color Doppler is enhanced ultrasound technology that shows blood flowing through arteries and veins. Blood flowing through arteries appears red, while blood flowing through veins appears blue. The color Doppler is useful in showing damage to blood vessels in the perineum.



## How is perineal injury treated?

Treatments for perineal injury vary with the severity and type of injury. Tears or incisions may require stitches. Traumatic or piercing injuries may require surgery to repair damaged pelvic floor muscles, blood vessels, and nerves. Treatment for these acute injuries may also include antibiotics to prevent infection. After a health care provider stabilizes an acute injury so blood loss is no longer a concern, a person may still face some long-term effects of the injury, such as bladder control and sexual function problems. A health care provider can treat high-flow priapism caused by a blunt injury to the perineum with medication, blockage of the burst blood vessel under x-ray guidance, or surgery.

In people with a chronic perineal injury, a health care provider will treat the complications of the condition. Read more in the following publications at [www.urologic.niddk.nih.gov](http://www.urologic.niddk.nih.gov):

- *Erectile Dysfunction*
- *Urinary Incontinence in Men*

Read more about the lower urinary tract in *The Urinary Tract and How It Works* at [www.urologic.niddk.nih.gov](http://www.urologic.niddk.nih.gov).

## How can perineal injury be prevented?

Preventing perineal injury requires being aware of and taking steps to minimize the dangers of activities such as construction work or bike riding:

- People should talk with their health care provider about the benefits and risks of perineal surgery well before the operation.

- People who play or work around moving equipment or sharp objects should wear protective gear whenever possible.
- People who ride bikes, motorcycles, or horses should find seats or saddles designed to place the most pressure on the buttocks and minimize pressure on the perineum. Many health care providers advise bike riders to use noseless bike seats and to ride in an upright position rather than lean over the handle bars. The National Institute for Occupational Safety and Health, part of the Centers for Disease Control and Prevention, recommends noseless seats for people who ride bikes as part of their job.<sup>1</sup>
- People with constipation should talk with their health care provider about whether to take a laxative or stool softener to minimize straining during a bowel movement.

## Eating, Diet, and Nutrition

To prevent constipation, a diet with 20 to 35 grams of fiber each day helps the body form soft, bulky stool that is easier to pass. High-fiber foods include beans, whole grains and bran cereals, fresh fruits, and vegetables such as asparagus, brussels sprouts, cabbage, and carrots. For people prone to constipation, limiting foods that have little or no fiber, such as ice cream, cheese, meat, and processed foods, is also important. A health care provider can give information about how changes in eating, diet, and nutrition could help with constipation.

## Points to Remember

- Perineal injury is an injury to the perineum, the part of the body between the anus and the genitals, or sex organs. In males, the perineum is the area between the anus and the scrotum, the external pouch of skin that holds the testicles.
- Injury to the blood vessels, nerves, and muscles in the perineum can lead to complications such as
  - bladder control problems
  - sexual problems
- Common causes of acute perineal injury in males include
  - perineal surgery
  - straddle injuries
  - sexual abuse
  - impalement
- Chronic perineal injury most often results from a job- or sport-related practice—such as bike, motorcycle, or horseback riding—or a long-term condition such as chronic constipation.
- Traumatic or piercing injuries may require surgery to repair damaged pelvic floor muscles, blood vessels, and nerves. Treatment for these acute injuries may also include antibiotics to prevent infection.
- In people with a chronic perineal injury, a health care provider will treat the complications of the condition, such as erectile dysfunction (ED) and urinary incontinence.
- Preventing perineal injury requires being aware of and taking steps to minimize the dangers of activities such as construction work or bike riding.

- The National Institute for Occupational Safety and Health, part of the Centers for Disease Control and Prevention, recommends noseless seats for people who ride bikes as part of their job.

## Hope through Research

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has many research programs aimed at understanding kidney and urologic disorders, including ED and urinary incontinence. The NIDDK has completed the Conservative Treatment of Postprostatectomy Incontinence study, funded under National Institutes of Health (NIH) clinical trial number NCT00212264, which tested the effectiveness of conservative management of urinary incontinence symptoms in men after prostate surgery. Conservative techniques included self-monitoring with a bladder diary, fluid management, and pelvic-floor-muscle exercises. These techniques were compared with the same program plus biofeedback and electrical stimulation of the pelvic floor muscles.

Clinical trials are research studies involving people. Clinical trials look at safe and effective new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. To learn more about clinical trials, why they matter, and how to participate, visit the NIH Clinical Research Trials and You website at [www.nih.gov/health/clinicaltrials](http://www.nih.gov/health/clinicaltrials). For information about current studies, visit [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov).

## For More Information

### **Society of Urologic Nurses and Associates**

East Holly Avenue, Box 56  
Pitman, NJ 08071-0056  
Phone: 1-888-TAP-SUNA  
(1-888-827-7862)  
Email: [suna@ajj.com](mailto:suna@ajj.com)  
Internet: [www.suna.org](http://www.suna.org)

### **Urology Care Foundation**

1000 Corporate Boulevard  
Linthicum, MD 21090  
Phone: 1-800-828-7866 or 410-689-3700  
Fax: 410-689-3998  
Email: [info@urologycarefoundation.org](mailto:info@urologycarefoundation.org)  
Internet: [www.UrologyHealth.org](http://www.UrologyHealth.org)

### **Wound, Ostomy and Continence Nurses Society**

15000 Commerce Parkway, Suite C  
Mount Laurel, NJ 08054  
Phone: 1-888-224-WOCN  
(1-888-224-9626)  
Fax: 856-439-0525  
Internet: [www.wocn.org](http://www.wocn.org)

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You may also find additional information about this topic by visiting MedlinePlus at [www.medlineplus.gov](http://www.medlineplus.gov).

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## National Kidney and Urologic Diseases Information Clearinghouse

3 Information Way  
Bethesda, MD 20892-3580  
Phone: 1-800-891-5390  
TTY: 1-866-569-1162  
Fax: 703-738-4929  
Email: [nkudic@info.niddk.nih.gov](mailto:nkudic@info.niddk.nih.gov)  
Internet: [www.urologic.niddk.nih.gov](http://www.urologic.niddk.nih.gov)

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